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PATENT & TRADEMARK OFFICE

Atty. Dkt. No.:WG0052H

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Lemons et al.

Title: FOUR PIECE GOLF BALL

Appl. No.: 10/682,321

Filing Date: October 9, 2003

Examiner: Alvin A. Hunter

Art Unit: 3711

CERTIFICATE OF EXPRESS MAILING

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EB 160815898 US	January 16, 2007
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Terence P. O'Brien
(Printed Name)

(Signature)

APPEAL BRIEF UNDER 37 CFR 41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Appellants herewith file their Appeal Brief in the above-identified case, pursuant to their Notice of Appeal filed 20 November 2006.

1. REAL PARTY IN INTEREST

The real party in interest is Wilson Sporting Goods Co., the assignee of the present Application (as recorded at reel 014605, frame 0274).

2. RELATED APPEALS AND INTERFERENCES

Appellants are not aware of any related appeals or interferences with regard to the present application.

3. STATUS OF CLAIMS

Claims 1-10, 13-25, 36, and 37 are pending in the application. Claims 11, 12, and 26-35 have been canceled, and claims 20-25 have been withdrawn from consideration. The present Appeal is directed to claims 1-10, 13-19, 36, and 37, which were finally rejected in an Office Action mailed July 19, 2006.

4. STATUS OF AMENDMENTS

No amendment to the claims was filed subsequent to the final rejection.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to a golf ball 10 composed of a center layer or core 12, a middle layer or mantle 14, and a cover having an inner cover layer 16 and an outer cover layer 18. (Page 4, lines 22-26; Fig. 1).

In one embodiment, the core includes a high cis-1,4 content polybutadiene, 20 to 28 parts by weight of a co-crosslinking agent comprised primarily of a zinc salt of an unsaturated acrylate, 3 to 5 parts by weight of a metal oxide activator, and 0.8 to 1.5 parts per hundred resin of a free radical initiator. (Page 5, lines 9-14). The mantle includes a non-bimodal blend terpolymer consisting of 70 to 80% ethylene, 8 to 10.5% acrylic acid and 12 to 20% n-butyl acrylate, wherein 100% of the acrylic acid is neutralized with metal ions. (Page 6, lines 9-13). The inner cover layer includes a blend of ionomers, and the outer cover layer includes a thermoplastic polyurethane. (Page 6, lines 1-5).

In another embodiment, the center includes a diene rubber and has a diameter of between 1.00 inch and 1.40 inches and a deflection under a 200 lb. static load of between 0.100 inches and 0.180 inches. (Page 5, lines 6-9). The middle layer includes a thermoplastic material having a thickness of between 0.050 inches and 0.27 inches and a Shore D hardness of 62 or below. (Page 5, lines 17-19). The thermoplastic material includes a non-bimodal blend terpolymer including 7% to 12% by weight of a carboxylic acid, 12% to 20% by weight of an acrylate salt, and 71% to 80% by weight of ethylene, wherein 100% of the carboxylic acid is neutralized with a metal ion. (Page 5, lines 17-22). The inner cover layer includes a blend of ionomers, and has a Shore D hardness of at least 65 and a thickness of .020 inch to .050 inch. (Page 6, lines 1-3) The outer cover layer includes a thermoplastic polyurethane having a Shore D hardness of greater than 53, and a thickness of greater than 0.040 inch. (Page 6, lines 4-6).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Claims 1-10, 13-19, 36, and 37 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

2) Claims 1-3, 7, 8, and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan et al.* (U.S. Patent No. 6,057,403) in view of *Farrally et al.* (Science and Golf III) and *Chen* (U.S. Patent No. 6,562,906).

3) Claims 1, 2, 4, 5, 7, 8, 10, 13-16, 18, 19, 36, and 37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Melvin et al.* (U.S. Patent No. 5,779,562) in view of *Chen* (U.S. Patent No. 6,562,906).

4) Claims 3 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Melvin et al.* (U.S. Patent No. 5,779,562) in view of *Chen* (U.S. Patent No. 6,562,906) further in view of *Farrally et al.* (Science and Golf III).

7. ARGUMENT

I. CLAIMS 1-10, 13-19, 36, AND 37 ARE IN COMPLIANCE WITH THE WRITTEN DESCRIPTION REQUIREMENT OF 35 U.S.C. 112, FIRST PARAGRAPH.

In the final Office Action, mailed July 19, 2006, claims 1-10, 13-19, 36, and 37 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 1 and 14 each recite a mantle, or middle layer, including a non-bimodal blend terpolymer.

The Chen reference, cited against claims 1-10, 13-19, 36, and 37 under 35 U.S.C. 103(a), explains that a "bi-modal blend" is a melt-blend of ethylene α,β ethylenically unsaturated $C_{3\text{-}8}$

carboxylic acid copolymers having weight average molecular weights (Mw) of about 80,000 to about 500,000 (high copolymers) with ethylene α,β ethylenically unsaturated C_{3-8} carboxylic acid low polymers having Mw of about 2,000 to about 30,000 (low copolymers).

The "non-bimodal blend" terpolymers recited in claims 1 and 14 include ethylene, carboxylic acid (preferably acrylic acid), and an acrylate salt (preferably n-butyl acrylate), wherein 100% of the carboxylic acid is neutralized with metal ions. Appellants' specification makes no mention of "bi-modal blends," but instead refers only to ***conventional (i.e., "non-bimodal blend")*** terpolymers that include carboxylic acid. As recognized by one of ordinary skill in the art, in view of the *Chen* reference, conventional terpolymers that include carboxylic acid ***are*** **non**-bimodal blends. Thus, Appellants respectfully submit that the subject matter of claims 1-10, 13-19, 36, and 37 was described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. If the Board so desires, Appellants would be willing to submit a declaration under 37 CFR 1.132 stating that the conventional terpolymers described in the specification are non-bimodal blends.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

II. CLAIMS 1-3, 7, 8, AND 10 ARE NOT UNPATENTABLE OVER *SULLIVAN ET AL.* IN VIEW OF *FARRALLY ET AL.* AND *CHEN* UNDER 35 U.S.C. 103 (a).

In the final Office Action, mailed July 19, 2006, claims 1-3, 7, 8, and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Sullivan et al.* in view of *Farrally et al.* and *Chen*.

Claim 1 recites a golf ball including a core, a mantle and a cover having an inner cover layer and an outer cover layer. The core includes a high cis-1,4 content polybutadiene, 20 to 28 parts by weight of a co-crosslinking agent comprised primarily of a zinc salt of an unsaturated acrylate, 3 to 5 parts by weight of a metal oxide activator, and 0.8 to 1.5 parts per hundred resin of a free radical initiator. The mantle includes a non-bimodal blend terpolymer consisting of 70 to 80% ethylene, 8 to 10.5% acrylic acid and 12 to 20% n-butyl acrylate, wherein 100% of the acrylic acid is neutralized with metal ions. The inner cover layer includes a blend of ionomers and the outer cover layer includes a thermoplastic polyurethane.

Sullivan, alone or in combination with *Farrally et al.* and *Chen*, does not disclose, teach or suggest the golf ball of claim 1. In particular, *Sullivan*, *Farrally et al.* and *Chen* do not disclose, teach or suggest a golf ball having a core, a mantle, an inner cover layer and an outer cover layer wherein the mantle includes a non-bimodal blend terpolymer consisting of 70 to 80% ethylene, 8 to 10.5% acrylic acid and 12 to 20% n-butyl acrylate, wherein 100% of the acrylic acid is neutralized with metal ions, as required by claim 1.

The combination of elements and limitations of claim 1 was previously considered allowable over *Sullivan* and *Farrally et al.* (the original claim 6, which has been incorporated into claim 1, was indicated as being allowable over the cited art including *Sullivan* and *Farrally et al.* in the Office Action dated August 11, 2005). In the final Office Action, mailed July 19, 2006, *Chen* is combined with *Sullivan* and *Farrally et al.* due to the reference in *Chen* in the Summary of the Invention and in Col. 4, lines 1 through 7, of the copolymer being 40 to 100 percent neutralized.

Chen, however, is specific to bi-modal ionomers wherein a low copolymer with a molecular weight ("Mw") of about 2000 to about 30,000 is blended with a high copolymer having a Mw of about 80,000 to 500,000. *Chen* is devoid of any reference to neutralization of non-bimodal ionomers, as required by claim 1.

Further, although *Chen* includes statements that the acid moieties in the resulting bi-modal ionomer of the high and low copolymers are partially or fully neutralized to a level of about 40% to *about 100%*, ***Chen*** **does not teach, suggest or disclose neutralizing a non-bimodal ionomer to 100%**. Further, *Chen*'s statements regarding bimodal blend ionomers being neutralized to "about 100%" do not teach or disclose ***complete 100% neutralization***.

Rather, Appellants respectfully submit that *Chen* merely states the common practice of golf ball design at the time of filing of *Chen* to ***approach*** 100% neutralization, but not actually reach 100% neutralization. At the time of *Chen*'s filing, complete 100% neutralization was not performed because such ionomers would not flow and were unworkable. *Chen* provides no teaching or disclosure that would indicate that the phrase "about 100%" would mean anything other than an amount close to, but not reaching, 100% neutralized to one of ordinary skill in the art. Accordingly, *Chen* fails to teach, suggest or disclose a golf ball including a core, a mantle and inner and outer cover layers, wherein the mantle includes a terpolymer of ethylene and acrylic acid, wherein 100% of the acid groups are neutralized with metal ions.

Rather, the disclosure and teaching of *Chen* ***teaches away*** from complete 100% neutralization. *Chen* repeatedly states that preferred ranges of neutralization include about 50 to about 85% neutralization, about 50 to about 90% neutralization or about 60 to about 80% neutralization. Further, *Chen* provides 33 examples of his invention, wherein 33 different golf ball compositions are disclosed. None of the 33 examples included co- or terpolymers that were 100% neutralized with metal ions. Rather than use complete 100% neutralization, the 33 different golf ball composition examples of *Chen* include copolymer neutralization within the range of 37% to 75%, which is consistent with the existing art at the time of *Chen*'s filing. *Chen* is wholly devoid of any disclosure indicating that the term "about 100% neutralization" is to be interpreted as complete 100% neutralization. Rather, *Chen*'s disclosure is consistent with the state of the art of golf ball design at the time of the *Chen* filing, wherein golf balls were not produced with co- or terpolymers that were 100% neutralized because the result was unworkable.

Sullivan, alone or in combination with *Farrally et al.* and *Chen*, does not disclose, teach or suggest a golf ball having a core, a mantle, an inner cover layer and an outer cover layer wherein the mantle includes a non-bimodal blend terpolymer consisting of 70 to 80% ethylene, 8 to 10.5% acrylic acid and 12 to 20% n-butyl acrylate, wherein 100% of the acrylic acid is neutralized with metal ions, as required by claim 1. Accordingly, Appellants respectfully submit that claim 1 is patentable over the cited art. Additionally, Appellants respectfully submit that claims 2, 3, 7, 8 and 10, which depend from independent claim 1, are also patentable for at least the same reasons.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

III. CLAIMS 1, 2, 4, 5, 7, 8, 10, 13-16, 18, 19, 36, AND 37 ARE PATENTABLE OVER *MELVIN ET AL.* IN VIEW OF *CHEN* UNDER 35 U.S.C. 103 (a).

In the final Office Action, mailed July 19, 2006, claims 1, 2, 4, 5, 7, 8, 10, 13-16, 18, 19, 36, and 37 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Melvin et al.* in view of *Chen*.

The combination of elements and limitations of claims 14 and 15 was previously considered allowable over the cited art including *Melvin et al.* (Office Action dated August 11, 2005). In the final Office Action, mailed July 19, 2006, *Chen* is used in combination with *Melvin et al.* to reject the claims. *Chen* is being used due to its reference in the Summary of the Invention and in Col. 4, lines 1 through 7, of the copolymer being 40 to 100 percent neutralized.

As discussed above, *Chen* is specifically directed to bi-modal ionomers, wherein a low copolymer with a molecular weight ("Mw") of about 2000 to about 30,000 is blended with a high copolymer having a Mw of about 80,000 to 500,000. *Chen* is devoid of any reference to neutralization of non-bimodal ionomers, as required by claims 1 and 14. Further, although *Chen* includes statements that the acid moieties in the resulting bi-modal ionomer of the high and low copolymers are partially or fully neutralized to a level of about 40% to *about 100%*, *Chen* does not teach, suggest or disclose neutralizing a non-bimodal ionomer to 100%. Further, *Chen*'s statements regarding bimodal blend ionomers being neutralized to "about 100%" do not teach or disclose complete 100% neutralization.

Accordingly, Appellants respectfully submit that independent claims 1 and 14 are patentable over the cited art. Additionally, Appellants respectfully submit that claims 2, 4, 5, 7, 8, 10, and 36, which depend from independent claim 1, and claims 13, 15, 16, 18, 19, and 37, which depend from independent claim 14, are also patentable over the cited art for at least the same reasons.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

IV. CLAIMS 3 AND 17 ARE NOT UNPATENTABLE OVER *MELVIN ET AL.* IN VIEW OF *CHEN* FURTHER IN VIEW OF *FARRALLY ET AL.* UNDER 35 U.S.C. 103 (a).

In the final Office Action, mailed July 19, 2006, claims 3 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Melvin et al.* in view of *Chen* further in view of *Farrally et al.*

Melvin et al., alone or in combination with *Chen* and *Farrally et al.*, does not disclose, teach or suggest the golf ball of claim 1 or claim 14, from which claims 3 and 17 depend, respectively. In particular, *Melvin et al.*, *Chen* and *Farrally et al.* do not disclose, teach or suggest a non-bimodal blend terpolymer in the mantle or middle layer of a golf ball that includes ethylene, carboxylic acid (such as acrylic acid), and an acrylate salt (such as n-butyl acrylate), wherein 100% of the carboxylic acid is neutralized with metal ions.

As discussed above, *Chen* is devoid of any reference to neutralization of non-bimodal ionomers, as required by claims 1 and 14. Further, although *Chen* includes statements that the acid moieties in the resulting bi-modal ionomer of the high and low copolymers are partially or fully neutralized to a level of about 40% to *about 100%, Chen* does not teach, suggest or disclose neutralizing a non-bimodal ionomer to 100%. Further, *Chen*'s statements regarding bimodal blend ionomers being neutralized to "about 100%" do not teach or disclose complete 100% neutralization.

Accordingly, Appellants respectfully submit that independent claims 1 and 14 are patentable over the cited art. Additionally, Appellants respectfully submit that claim 3, which depends from independent claim 1,and claim 17, which depends from independent claim 14, are also patentable over the cited art for at least the same reasons.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

Pursuant to 37 C.F.R. §41.20(b)(2), Appellants authorize the Commissioner to charge Deposit Account No. 501959 in the amount of $500.00 to cover the filing fee for filing a brief in support of appeal. Commissioner is also hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§1.16-1.17, or credit any overpayment, to Deposit Account No. 501959.

8. CONCLUSION

For the above reasons, Appellants respectfully submit that the rejections posed by the Examiner are improper as a matter of law and fact. Accordingly, Appellants respectfully request the Board reverse the rejection of claims 1-10, 13-19, 36 and 37.

Respectfully submitted,

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CLAIMS APPENDIX

1. A golf ball comprising:

a core comprising a high cis-1,4 content polybutadiene, 20 to 28 parts by weight of a co-crosslinking agent comprised primarily of a zinc salt of an unsaturated acrylate, 3 to 5 parts by weight of a metal oxide activator, and 0.8 to 1.5 parts per hundred resin of a free radical initiator;

a mantle comprising a non-bimodal blend terpolymer consisting of 70 to 80% ethylene, 8 to 10.5% acrylic acid and 12 to 20% n-butyl acrylate, wherein 100% of the acrylic acid is neutralized with metal ions;

a cover having an inner cover layer and an outer cover layer;

the inner cover layer comprises a blend of ionomers; and

the outer cover layer comprising a thermoplastic polyurethane.

2. The golf ball of claim 1, wherein the core has a diameter of 1.2 inches to 1.38 inches.

3. The golf ball of claim 1, wherein the high cis-1,4 content polybutadiene is 94% or greater.

4. The golf ball of claim 3, wherein the core has a deflection of between 0.100 and 0.180 inches under an applied load of 200 lb.

5. The golf ball of claim 1, wherein the mantle has a thickness of 0.065 inches to 0.140 inches and a Shore D hardness within the range of 55 to 62.

6. The golf ball of claim 1, wherein the metal ions are magnesium ions.

7. The golf ball of claim 1, wherein the inner cover layer has a Shore D hardness within the range of 68 and 73 and a thickness of 0.025 inches to 0.045 inches.

8. The golf ball of claim 1, wherein the outer cover layer has a Shore D hardness within the range of 56 and 62 and a thickness of 0.040 inches to 0.055 inches.

9. The golf ball of claim 1, wherein the core, the mantle, the inner cover layer and the outer cover layer each have a specific gravity within the range of 1.18 to 1.132.

10. The golf ball of claim 1, further comprising a filler selected from the group consisting of zinc oxide, barium sulfate, titanium dioxide, and combinations thereof.

Claims 11 and 12 are canceled

13. The golf ball of claim 14, wherein the carboxylic acid is acrylic acid and the acrylate salt is n-butyl acrylate.

14. A golf ball comprising:

a center comprising a diene rubber, having a diameter of between 1.00 inch and 1.40 inches and a deflection under a 200 lb. static load of between 0.100 inches and 0.180 inches;

a middle layer comprising a thermoplastic material having a thickness of between 0.050 inches and 0.27 inches, a Shore D hardness of 62 or below, the thermoplastic material comprising a non-bimodal blend terpolymer including 7% to 12% by weight of a carboxylic acid, 12% to 20% by weight of an acrylate salt, and 71% to 80% by weight of ethylene, wherein 100% of the carboxylic acid is neutralized with a metal ion;

an inner cover layer comprising a blend of ionomers, and having a Shore D hardness of at least 65 and a thickness of .020 inch to .050 inch; and an outer cover layer comprising a thermoplastic polyurethane having a Shore D hardness of greater than 53, and a thickness of greater than 0.040 inch.

15. The golf ball of claim 14, wherein the metal ion is magnesium.

16. The golf ball of claim 14, wherein the center comprises:

a polybutadiene;

20 to 28 parts by weight of a co-crosslinking agent comprised primarily of a zinc a salt of an unsaturated acrylate;

3 to 5 parts by weight of a metal oxide activator; and

0.8 to 1.5 parts per hundred resin of a free radical initiator.

17. The golf ball of claim 14, wherein the cis-1,4 content of the polybutadiene is 94% or greater.

18. The golf ball of claim 14, wherein the center, the middle layer, the inner cover layer and the outer cover layer each have a specific gravity within the range of 1.18 to 1.132.

19. The golf ball of claim 14, further comprising a filler selected from the group consisting of zinc oxide, barium sulfate, titanium dioxide, and combinations thereof.

Claims 20-25 are withdrawn.

Claims 26 through 35 are canceled.

36. The golf ball of claim 9, wherein the specific gravities of the core, the mantle, the inner cover layer and the outer cover layer are each 1.125.

37. The golf ball of claim 18, wherein the specific gravities of the center, the middle layer, the inner cover layer and the outer cover layer are each 1.125.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None